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Virtually Collaborating Across Cultures: A Case Study of an Online Theatrical Performance in a 3DCVE Spanning Three Continents

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Abstract

Much Information Communication Technology (ICT) design work involves international collaboration. This requires cross-cultural understandings with one's co-collaborators. There are few opportunities for this to occur in a pedagogical setting. This paper outlines a pedagogically-oriented case study of the use of a 3D collaborative virtual environment (3D CVE). The 3D co-located laboratory (3DCollab) described in this paper served as a cross-cultural exchange platform. It fostered deeper understandings of alternate meanings to everyday social and work practices and design computing assumptions. The project involved students across three cooperating institutions, on three different continents in different time zones. It builds on previous exercises conducted by the authors.

1. Introduction

The project described in this paper contributes to the ongoing need for ICT professionals to work in diverse cultural environments. Cross-cultural encounters are necessary to make students more culturally-aware when they enter their chosen ICT professions [2, 6, 7, 8]. Remote collaboration addresses this need. The system described here incorporates a combination of existing technologies with a 3D CVE. It is part of a system developed over a number of years [1, 3, 9, 10]. It capitalized on a pre-existing common interest by students in 3D computer game culture. 3D CVEs also support informal socialization [4].

The students who participated in this exercise study multimedia design, design computing, and computer science. As such, they were open to engagement in computer-supported collaborative work (CSCW) and the creative design process. The 3D co-located laboratory project (3DCollab) gave them the opportunity to collaborate remotely. It gave them content to discuss, and it is in their discussions that new understandings about alternate cultural approaches to the tasks emerged. This paper reports on the latest iteration of ongoing remote collaboration research in pedagogy.

2. The 3DCollab Interface

The suit of tools chosen for this 3DCollab comprised three primary groupware applications: Yahoo (video and chat), Active Worlds (3DVE and chat), and Email (text and file transfer). The interrelationships between these tools were, at times, direct.

Students could converse with each other using video, voice, and chat to get instructions on how and what to build in the AWs 3DVE. At times, the students were instructed remotely by the teachers directly within the AWs 3DVE moving from the Yahoo video and chat screen to the 3DVE environment and back. This approach proved to be very effective.

3. The Project

Students from three institutions cooperated on a single project: the University of Queensland (UQ, Brisbane, Australia), 67 first year B. Multi-Media; the

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National Yunlin University of Science and Technology (NYUST, Douliou, Taiwan), 8 Master of Computational Design; and, the Norwegian University of Science and Technology (NTNU, Trondheim, Norway), 61 B. Computer Science. They collaborated on the script writing, construction, and performance of *Plato's Allegory of the Cave*.

Plato's parable was chosen because, in philosophic terms, he describes the process of getting educated in the affairs of the world. As such it was deemed an appropriate vehicle for ICT students to learn about the value of collaboration as an educationally transformative ideal. It also served as a motive for engaging in the technology and as a theoretical framework for investigating notions of cross-cultural understandings in information technology. Furthermore, as it details a physical environment, it also provides a scenario suitable for reconstruction in a 3DVE.

All teams had access to the same material: Jowett's [11] translation of Plato's *Allegory of the Cave*; the Active Worlds 3D virtual world environment and tutorials for building in it; Yahoo messenger; and, various email applications. Plato's parable was divided into 5 acts. Each section took about one hour to complete. There were up to 40 participants online at the same time. Between each act participants regrouped at a predetermined place in the 3DVE where they were met by a guide who took them to the next scene. Participants could interact with the actors and ask questions as the play proceeded.

4. Evaluation

Analyses of the chat logs raises a number of issues: cross-cultural, overcoming cultural difference, and socialization. Interacting in the AWs 3DVE, students found they could not assume that their remote counterpart would understand how to use the spaces they had constructed or interpret their actions. Methods needed to be developed that offered 'universal' communication metaphors. For example, the 'wave' function in the AWs 3DVE was used as a method for attracting the attention of others and 'getting in their face'.

When we analysed the chats from the Yahoo messenger environment, we noticed a cultural shift occurred during the conversations. The Australian students seemed open and consistent in their inquiry and expression. On the other hand, the Taiwanese students were more guarded in their responses to probing questions. At first, they never give a direct answer. They seemed to be looking for the other's opinion first to gauge their own response before answering. When asked why Taiwanese students take this course of action it was revealed that early year students tend to be too reserved to talk about their ideas openly. Nevertheless, the video conference had helped them to socialize.

When we move to the AWs 3D virtual environment we find that the shift from socially reserved to openly inquisitive was most pronounced in those students who had engaged in the earlier Yahoo-mediated ice-breaking exercises. They seemed to have a greater natural rapport with the same participants when in the 3DVE towards the end of the project. We saw instant joyous recognition and bonding carried over from their video-conferencing and email communications. This suggests that the collection of tools used in the 3DCollab project were supplemented by each other, with some tools more appropriate for different phases of the cooperation and has been found in previous iterations [4, 5]. Together they were the glue for creating the virtual community that came together in the final performance.

What was revealed by the Norwegian students' reflective essays, is that they: bring a pre-knowledge of their pre-existing technical culture to bear on the evaluation process; make direct cultural references about what they experienced in the play as they understood it; began to explore their own understandings of what a traditional theatre is and how this compares to its virtual corollary; and, honestly reflected on their own voyeuristic anonymity as an avatar and how this empowered them to do things they might not otherwise do in the 'real' world.

A series of short questions was asked of each Australian group following the final performance, and later with all the Taiwanese students as a single group:

- How was this a worthwhile exercise?
- What did you learn about each other?
- What did you learn about remote collaboration?
- What did you learn about the technology?

Their responses were then negotiated as a class in an iterative process until consensus was achieved on agreed meanings. The outcomes of this process indicated that much of the negotiating was taken up establishing common ground for discussing how to proceed. For the Taiwanese this involved accepting the more critical inquiry style of their Australian counterparts. For the Australian students this involved taking the time to develop a trusting relationship with their Taiwanese counterparts which, once achieved, bore much fruit; and, this exercise was instrumental in transforming the students' ideas about the need for,

and potential rewards from, collaborating both within a team and across a time zone.

The consistent themes which emerge across chats, essays, and interviews is summarised in the following. Firstly, we found references to pre-existing cultural understandings of the technology used was consistent across all groups and countries. This suggests that IT culture is largely homogeneous, the difference comes from content not control. Also, the technology itself influenced cultural perceptions about the spaces created and their constructor's. Students' feedback show that the very nature of a theatrical performance meant different things to the students in Norway, Australia, and Taiwan. Consistent across all forums was the notion that being able to 'hide' behind one's avatar and alias was liberating and empowering in ways that made the technology appealing for those who may not have 'spoken out' under different 'real-world' circumstances.

5. Conclusion

The reported study allowed the exploration of a number of issues related to supporting cross-cultural interaction with groupware tools. It also highlights the value of the 3DCVE as a platform for cross-cultural encounters across significant geographical distances. It allowed a quick and informal 'acquaintance' between people from different cultural backgrounds. As opposed to alternative tools such as 2D chats and forums, the 3D aspect allowed a more active social involvement and the visualization and concretization of the performed activities central to the project.

We learned a number of lessons from this exercise. First, the study emphasized the need to combine several technological tools in order to support a broad variety of socializing and communicational modes. At the same time, participants found they could not rely on the technology to instigate the collaboration as the collaboration comes from joint goal setting. These goals may not always be those circumstantially framed by the pedagogical exercise, rather more pragmatic aims were needed, such as being prepared for the reviews which attracted marks. All students had a common goal, hence the motive to overcome communication misunderstandings was paramount. This led to surprising interchanges (as we have seen from the chats, essays, and interviews). These interchanges transformed students' understandings about cultural differences in approach to a particular task, and over the course of the exercise they adjusted their own outlook to accommodate these differences. In this sense, the 3D CVE facilitated cross-cultural exchange of ideas and transformations of prior cultural understandings. In turn, this should lead to the student cohort that participated in this exercise to be better equipped on graduation to recognise and adjust to different cultural expectations in the workplace.

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